

How to Make the Avocado Tree Bear

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There is no experience either in California or in Florida on which to base adequate avocado fertilization. Considerations at this time will have to be taken very largely from general fertilizer experience relative to other crops. There are three general fertilizer elements that are considered necessary in a fertilizer program: nitrogen, potash, and phosphoric acid. Long investigations in California have indicated that of these, nitrogen alone is lacking in practically all our soils. This experience is beginning to be borne out in fruit districts in other parts of the United States. In addition to nitrogen, soils of our arid regions are very deficient in organic matter. The maintenance of these two essentials then is a most important consideration.

The experience in fertilizing citrus trees is of value to avocado growers, since the two trees are evergreen and come from warmer regions of the world. Experience and experiments with citrus trees indicate that good results are obtained from the use of two pounds of nitrogen per tree per year. The avocado fruit is higher in nitrogen than citrus fruits based on analyses of Messrs. Chase and Church, and assuming a production of 300 pounds of fruit per tree per year, a mature bearing tree would require 3 to 5 pounds of nitrogen to replace that removed by the crop and sustain tree growth. No trees in this state have received such an application for a sufficient length of time to determine results. It is safe to say that mature bearing trees have to date received an insufficient amount of nitrogen to satisfy the best fruiting conditions. On the other hand, young trees can be pushed too far through the use of nitrogen fertilizers and the fruitful period postponed, it having been demonstrated that with an excess of nitrogen, other plant functions being normal, the fruiting period is delayed. Consequently heavy applications of barnyard manure, or other fertilizers high in nitrogen should not be made to young trees.

Sources:

As to the sources of nitrogen, experience clearly indicates that chemical sources alone are not satisfactory and may even give detrimental results. One-half of the amount at least should be derived from organic material. The bulky manures are preferable to other organic sources. These include barnyard manure, beanstraw, alfalfa hay, and the use of leguminous cover crops. Other organic sources such as dried blood, tankage, cottonseed meal, are very satisfactory. In addition part of the supply could be derived from such quickly available sources as nitrate of soda, nitrate of lime, or ammonium sulfate.

Application:

The best time of application has not been carefully worked out. In citrus orchards the

application of quickly available forms of nitrogen just prior to the blooming period aids in setting the crop. Additional amounts of similar material applied throughout the growing period have given good results in Florida under soil conditions differing from those in California. Normal growth and fruitfulness presupposes a sufficient amount of nitrogen throughout the growing season. Decaying organic matter, especially bulky manures, renders this condition much more positive and at the same time renders other plant nutrients already in the soil—phosphorus and potash— available for the use of the tree. These bulky manures are usually plowed under in the fall in order to furnish available nitrogen during the growing season. Quickly available forms such as ammonium sulfate and nitrate of lime should be plowed under in the spring in order that they may come in contact with the root zone. Much fertilizer has been wasted because it was not worked deep enough, remaining in the upper few inches.

Cover-Crops:

Leguminous cover crops in winter and where water is available, in summer, add nitrogen and organic matter. Their use is recommended as a regular orchard practice where moisture conditions are satisfactory. It should be pointed out that the use of a summer cover crop where water is not abundant has often resulted in severe damage to the trees. Their use in young orchards has been demonstrated to be of exceptional value. They supply all the nitrogen and organic matter requirements when used in connection with young citrus orchards, up to bearing age.